# RADIANT ENERGY

*Energy in the form of light*

The sun is the earth's primary source of radiant energy. A significant portion of the radiant energy from the sun actually gets converted to other forms of energy once it reaches the earth. For example, the process of photosynthesis by plants converts the radiant energy from the sun to chemical energy. Both the atmosphere and the surface of the earth absorb large portions of the sun's radiant energy and convert it to heat. The resulting heat contributes to the formation of winds in our atmosphere. Both these winds and the heat of the sun play a critical role in the earth's hydrologic cycle.

*Further considerations:* The light we can see with our eyes is only a portion of the radiant energy that travels in waves towards the earth from the sun. These various types of radiant energy are part of the *electromagnetic spectrum* and includes gamma-rays, x-rays, ultraviolet waves (UV), infrared (IR), radio waves, etc. A very small fraction of the spectrum is actually visible to the human eye.

We often use electricity to generate radiant energy in the form of light using a light bulb. However, a significant portion (90%) of the electrical energy converted by a common light bulb is actually converted to heat (IR) and only a small fraction to light energy.

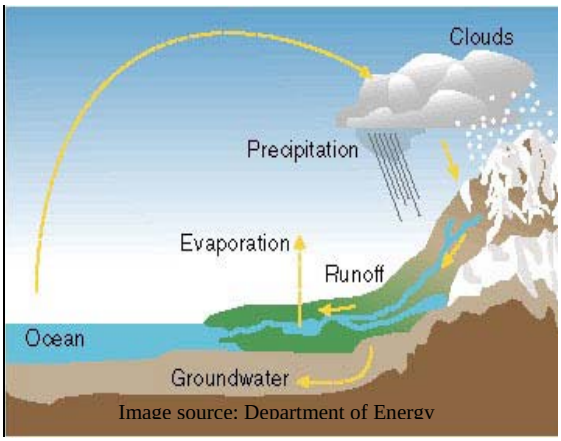

Image source: Department of Energy

THE HYDROLOGIC CYCLE IS DRIVEN BY THE SUN

The water that falls on landmasses as a result of the hydrologic cycle leads to the formation of streams and rivers. In many ways both wind and rivers are the result of the effects of the sun's radiant energy and represent forms of mechanical energy that we can use to generate power.

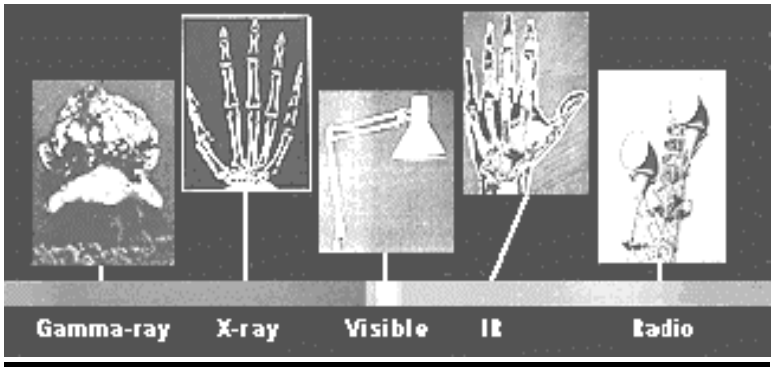

Image source: NASA